

Attorney Docket No. 7768

CLAIMS

In the Claims:

1. (Currently amended) A method of tracing process printing fluids, comprising the steps of:

- 1) providing a printing process wherein one or more process printing fluids are in use; wherein said process printing fluids are selected from the group consisting of Fountain Solutions and Web Release Agents;
- 2) providing a tracer material, capable of being detected fluorometrically, for each process printing fluid of interest, wherein each tracer material, being added to each process printing fluid of interest, has a detectable fluorescent signal;
- 3) providing one or more fluorometers capable of detecting the fluorescent signals of each tracer material being used within the process printing fluids of interest;
- 4) locating said one or more fluorometers in any location within the printing process where it is desired to detect the presence or absence of the process printing fluid of interest, ~~except that the location cannot be selected to measure the process printing fluid on the paper itself;~~
- 5) using said one or more fluorometers to detect and measure the fluorescent signal of said tracer materials in one or more locations within the printing process;
- 6) using the detected and measured fluorescent signals of said tracer materials to determine the concentration of the process printing fluids is present in the selected location in the printing process; and optionally
- 7) adjusting the ~~operating parameters of said printing process such that the amount of process printing fluid present at the locations of interest is optimized.~~ concentration of said printing process fluids to a desired concentration.

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2. (Original) The method of Claim 1 in which said process printing fluid is a Fountain Solution.

3. (Original) The method of Claim 1 in which said process printing fluid is a One-Component Fountain Solution.

4. (Original) The method of Claim 1 in which said process printing fluid is a Two-Component Fountain Solution.

5. (Original) The method of Claim 1 in which said process printing fluid is a Web-Release Agent.

6. (Original) The method of Claim 3 in which said tracer is selected from the group consisting of:

2-anthracenesulfonic acid sodium salt (CAS Registry No. 16106-40-4),
5-anthracenedisulfonic acid (CAS Registry No. 61736-91-2) and salts thereof,

2,6-anthracenedisulfonic acid (CAS Registry No. 61736-95-6) and salts thereof,

1,8-anthracenedisulfonic acid (CAS Registry No. 61736-92-3) and salts thereof,

anthra[9,1,2-cde]benzo[rst]pentaphene-5,10-diol, 16,17-dimethoxy-,

bis(hydrogen sulfate), disodium salt, aka Anthrasol Green IBA (CAS

Registry No. 2538-84-3), aka Solubilized Vat Dye,

bathophenanthrolinedisulfonic acid disodium salt (CAS Registry No. 52746-

49-3),

1H-benz[de]isoquinoline-5-sulfonic acid, 6-amino-2,3-dihydro-2-(4-methylphenyl)-
1,3-dioxo-, monosodium salt, aka Brilliant Acid Yellow 8G (CAS Registry No. 2391-
30-2), aka Lissamine Yellow FF, Acid Yellow 7,

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benzo[a]phenoxazin-7-ium, 5,9-diamino-, acetate, aka cresyl violet acetate (CAS Registry No. 10510-54-0),

1-ethylquinaldinium iodide (CAS Registry No. 606-53-3),

Keyfluor White ST (CAS Registry No. 4193-55-9), aka Flu. Bright 28,

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[bis(2-hydroxyethyl)amino]-6-[(4-sulfophenyl)amino]-1,3,5-triazin-2-yl]amino]-, tetrasodium salt, aka Keyfluor White CN (CAS Registry No. 16470-24-9),

9,9'-biacridinium, 10,10'-dimethyl-, dinitrate, aka Lucigenin (CAS Registry No. 2315-97-1, aka bis-N-methylacridinium nitrate),

1-deoxy-1-(3,4-dihydro-7,8-dimethyl-2,4-dioxobenzo[g]pteridin-10(2H)-yl)-D-ribose, aka Riboflavin or Vitamin B2 (CAS Registry No. 83-88-5),

2-amino-1-naphthalenesulfonic acid (CAS Registry No. 81-16-3),

5-amino-2-naphthalenesulfonic acid (CAS Registry No. 119-79-9),

7-amino-1,3-naphthalenesulfonic acid, potassium salt (CAS Registry No. 79873-35-1),

5-dimethylamino-1-naphthalenesulfonic acid (CAS Registry No. 4272-77-9),

1-amino-4-naphthalene sulfonic acid (CAS Registry No. 84-86-6),

1-amino-7-naphthalene sulfonic acid (CAS Registry No. 119-28-8),

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-(4-phenyl-2H-1,2,3-triazol-2-yl)-, dipotassium salt, aka Phorwite BHC 766 (CAS Registry No. 52237-03-3),

benzenesulfonic acid, 5-(2H-naphtho[1,2-d]triazol-2-yl)-2-(2-phenylethenyl)-, sodium salt, aka Pylaklor White S-15A (CAS Registry No. 6416-68-8),

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1,3,6,8-pyrenetetrasulfonic acid, tetrasodium salt (CAS Registry No. 59572-10-0),

quinoline (CAS Registry No. 91-22-5),

xanthylium, 9-(2,4-dicarboxyphenyl)-3,6-bis(diethylamino)-, chloride, disodium salt, aka Rhodamine WT (CAS Registry No. 37299-86-8),

phenazinium, 3,7-diamino-2,8-dimethyl-5-phenyl-, chloride, aka Safranin O (CAS Registry No. 477-73-6),

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[(2-hydroxypropyl)amino]-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt, aka Sandoz TH-40 (CAS Registry No. 32694-95-4),

xanthylium, 3,6-bis(diethylamino)-9-(2,4-disulfophenyl)-, sodium salt, aka Sulforhodamine B (CAS Registry No. 3520-42-1, aka Acid Red 52),

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[(aminomethyl)(2-hydroxyethyl)amino]-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt, aka Tinopal 5BM-GX (CAS Registry No. 169762-28-1),

benzenesulfonic acid, 2,2'-([1,1'-biphenyl]-4,4'-diyl)-2,1-ethenediylbis-, disodium salt aka Tinopal CBS-X (CAS Registry No. 27344-41-8) and

7-benzothiazolesulfonic acid, 2,2'-(1-triazene-1,3-diyl)-4,1-phenylenebis[6-methyl-, disodium salt, aka Titan Yellow (CAS Registry No. 1829-00-1, aka Thiazole Yellow G).

7. (Original) The method of Claim 6 in which said tracer is selected from the group consisting of:

2-anthracenesulfonic acid sodium salt (CAS Registry No. 16106-40-4),

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1,5-anthracenedisulfonic acid (CAS Registry No. 61736-91-2) and salts thereof,

2,6-anthracenedisulfonic acid (CAS Registry No. 61736-95-6) and salts thereof,

1,8-anthracenedisulfonic acid (CAS Registry No. 61736-92-3) and salts thereof,
anthra[9,1,2-cde]benzo[rst]pentaphene-5,10-diol, 16,17-dimethoxy-, bis(hydrogen
sulfate), disodium salt, aka Anthrasol Green IBA (CAS Registry No. 2538-84-3, aka
Solubilized Vat Dye),

bathophenanthrolinedisulfonic acid disodium salt (CAS Registry No. 52746-49-3),

Keyfluor White ST (CAS Registry No. 4193-55-9, aka Flu. Bright 28),

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[bis(2-hydroxyethyl)amino]-6-
[(4-sulfophenyl)amino]-1,3,5-triazin-2-yl]amino]-, tetrasodium salt, aka Keyfluor
White CN (CAS Registry No. 16470-24-9),

1-deoxy-1-(3,4-dihydro-7,8-dimethyl-2,4-dioxobenzo[g]pteridin-10(2H)-yl)-D-
ribitol, aka Riboflavin or Vitamin B2 (CAS Registry No. 83-88-5),

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-(4-phenyl-2H-1,2,3-triazol-2-yl)-,
dipotassium salt, aka Phorwite BHC 766 (CAS Registry No. 52237-03-3),

benzenesulfonic acid, 5-(2H-naphtho[1,2-d]triazol-2-yl)-2-(2-phenylethenyl)-,
sodium salt, aka Pylaklor White S-15A (CAS Registry No. 6416-68-8),

1,3,6,8-pyrenetetrasulfonic acid, tetrasodium salt (CAS Registry No. 59572-
10-0),

xanthylium, 9-(2,4-dicarboxyphenyl)-3,6-bis(diethylamino)-, chloride, disodium salt,
aka Rhodamine WT (CAS Registry No. 37299-86-8),

phenazinium, 3,7-diamino-2,8-dimethyl-5-phenyl-, chloride, aka Safranine O (CAS
Registry No. 477-73-6),

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benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[(2-hydroxypropyl)amino]-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt, aka Sandoz TH-40 (CAS Registry No. 32694-95-4),

xanthylum, 3,6-bis(diethylamino)-9-(2,4-disulfophenyl)-, sodium salt, aka Sulforhodamine B (CAS Registry No. 3520-42-1, aka Acid Red 52),

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[(aminomethyl)(2-hydroxyethyl)amino]-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt, aka Tinopal 5BM-GX (CAS Registry No. 169762-28-1),

benzenesulfonic acid, 2,2'-([1,1'-biphenyl]-4,4'-diyl-di-2,1-ethenediyl)bis-, disodium salt aka Tinopal CBS-X (CAS Registry No. 27344-41-8).

8. (Original) The method of Claim 7 in which said tracer is selected from the group consisting of :

2-anthracenesulfonic acid sodium salt (CAS Registry No. 16106-40-4),
1,5-anthracenedisulfonic acid (CAS Registry No. 61736-91-2) and salts thereof,
2,6-anthracenedisulfonic acid (CAS Registry No. 61736-95-6) and salts thereof,
1,8-anthracenedisulfonic acid (CAS Registry No. 61736-92-3) and salts thereof; and
1,3,6,8-pyrenetetrasulfonic acid, tetrasodium salt (CAS Registry No. 59572-10-0).

9. (Original) The method of Claim 1 in which both a One-Component Fountain Solution and a Web Release Agent are traced and the same tracer is used in both printing fluids and that tracer is a mixture of the 1,5- and 1,8-isomer of anthracene disulfonic acid, disodium salt.

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10. (Original) The method of Claim 1 in which both a One-Component Fountain Solution and a Web Release Agent are traced and a different tracer is used in each of the printing fluids.

11. (Original) The method of Claim 1 in which a Two-Component Fountain Solution and a Web Release Agent are traced, and one tracer is used in the first part of the Two-Component Fountain Solution, another tracer is used in the second part of the Two-Component Fountain Solution and a third different tracer is used in the Web Release Agent.

12. (Original) The method of Claim 1 in which said process printing fluid is a Web Release Agent.

13. (Original) The method of Claim 12 in which said tracer is selected from the group consisting of:

1,5-anthracenedisulfonic acid (CAS Registry No. 61736-91-2) and salts thereof, 2,6-anthracenedisulfonic acid (CAS Registry No. 61736-95-6) and salts thereof, 1,8-anthracenedisulfonic acid (CAS Registry No. 61736-92-3) and salts thereof; and mixtures thereof,

sulfonated amino-stilbene fluorescent brighteners and salts thereof, including, but not limited to:

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[bis(2-hydroxyethyl)amino]-6-[(4-sulfophenyl)amino]-1,3,5-triazin-2-yl]amino]-, tetrasodium salt, aka Sandoz CD (CAS Registry No. 16470-24-9), aka Flu. Bright. 220,

benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[(2-hydroxypropyl)amino]-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt, (CAS Registry No. 32694-95-4), aka Sandoz TH-40,

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benzenesulfonic acid, 2,2'-(1,2-ethenediyl)bis[5-[[4-[(aminomethyl)(2-hydroxyethyl)amino]-6-(phenylamino)-1,3,5-triazin-2-yl]amino]-, disodium salt, (CAS Registry No. 169762-28-1), aka Tinopal 5BM-GX, and

sulfonated bi-stilbene fluorescent brighteners and salts thereof, including, but not limited to:

4',4'-bi[stilbene-2,2''-disulfonate] disodium salt (CAS Registry No. 27344-41-8), aka Tinopal CBS, and

alkylamino-coumarin fluorescent brighteners and salts thereof, including, but not limited to:

4-methyl-7-(diethylamino)-4-methylcoumarin (CAS Registry No. 91-44-1), aka Fluorescent Brightener 52.

14. (Original) The method of Claim 1 in which said process printing fluid is a Two-Component Fountain Solution wherein one tracer is used to trace the first part of the Two-Component Fountain Solution and a tracer with a different fluorescent signal is used to trace the second part of the Two-Component Fountain Solution.

15. (Original) The method of Claim 14 in which the tracers are as follows:

Component	Tracer	Tracer	Tracer	Tracer
First Component	ADSA	PTSA	ADSA	Tinopal CBS-X
Second Component	NDSA	NDSA	Rhodamine WT	Sulforhodamine B

Wherein, "ADSA" is a compound selected from the group consisting of 1,5-anthracenedisulfonic acid (CAS Registry No. 61736-91-2) and salts thereof,

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2,6-anthracenedisulfonic acid (CAS Registry No. 61736-95-6) and salts thereof, 1,8-anthracenedisulfonic acid (CAS Registry No. 61736-92-3) and salts thereof; and mixtures thereof,

"PTSA" refers to 1,3,6,8-pyrenetetrasulfonic acid, tetrasodium salt (CAS Registry No. 59572-10-0).

"NDSA" refers to 1,5-naphthalenedisulfonic acid, disodium salt (hydrate) (CAS Registry No. 1655-29-4), aka 1,5-NDSA hydrate,

"Tinopal CBS-X" refers to benzenesulfonic acid, 2,2'-([1,1'-biphenyl]-4,4'-diyl-di-2,1-ethenediyl)bis-, disodium salt aka Tinopal CBS-X (CAS Registry No. 27344-41-8),

"Rhodamine WT" refers to xanthylium, 9-(2,4-dicarboxyphenyl)-3,6-bis(diethylamino)-, chloride, disodium salt, aka Rhodamine WT (CAS Registry No. 37299-86-8),

"Sulforhodamine B" refers to xanthylium, 3,6-bis(diethylamino)-9-(2,4-disulfophenyl)-, sodium salt, aka Sulforhodamine B (CAS Registry No. 3520-42-1, aka Acid Red 52).